

The Dehydrogenation of n-Butane on a Semiindustrial  
Plant With Movable Spherical Catalyst

SOV/64-58-7-5/18

mechanical strength. Experiments with bucket, pneumatic and automatic tray elevators showed that for transporting K-3 and K-5 catalysts automatic tray elevators are best. The reactor and regenerator (Diagrams) of the plant were produced from 100180321 steel. The best results were obtained in the system with the movable catalyst K-5 at the following conditions: The rate of passage of butane 170-180 normal-m<sup>3</sup> per 1 m<sup>3</sup> catalyst per hour (temperature of butane 200°); rate of circulation of the catalyst 8.5 kg/1 kg butane; temperature of the catalyst 610-620°; temperature of the contact gas prior to its entrance into the reactor 590-600°. The experiments carried out for the dehydrogenation of propane, isobutane and isopentane on the plant described with the catalyst K-5 were carried out with G. M. Makhina participating in some of them. The experimental results are given in a table and show that high yields of the corresponding olefins can be obtained. There are 3 figures, 2 tables, and 5 Soviet references.

Card 2/2

TROITSKAYA, T.N.

Local features of Scythian culture in central Crimea and the Kerch Peninsula. Izv.Krym.otd.Geog.ob-va no.4:67-76 157. (MIRA 14:8)  
(Crimea—Scythian antiquities)  
(Kerch Peninsula—Scythian antiquities)

PEREPECHKIN, L.P.; TROITSKAYA, V.A.

Spun acetate fibers from viscous solutions of acetic acid.  
Khim. volok. no.2:55-57 '64. (MIRA 17:5)

1. Nauchno-issledovatel'skiy institut sinteticheskikh spirtov  
i organicheskikh produktov.

TROITSKAYA V.A.

ELMORE, William Cronk; VAYSENBERG, A.O. [translator]; TROITSKAYA, V.A.  
[translator]; MICHULIN, V.V., redaktor.

[Electronics in nuclear physics] Elektronika v iadernoi fizike.  
Moskva, Izd-vo inostrannoi lit-ry, 1951. 406 p. [Microfilm]  
(MLRA 7:11)

(Electronic apparatus and appliances) (Electron-tube  
circuits)

TROITSKAYA, V. A.

Geomagnetism

Dissertation: "Short Period Disturbances of the Earth's Magnetic Field." Cand  
Phys-Math Sci, Geophysics Inst, Department of Physicomathematical Sciences, Acad  
Sci USSR, Oct-Dec 1953. (Vestnik Akademii Nauk, Mar 54).

SO: SUM 213, 20 Sep 1954

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**APPROVED FOR RELEASE: 03/14/2001**

**CIA-RDP86-00513R001756710013-0"**

*Treitsky, V. I.*

*4*

*CA*

USSR.

550.37 : 550.38  
550.37 : 550.38

4037. Two types of oscillation of the earth's electro-GEO  
magnetic field and their diurnal variation in universal  
time. A. Treitskaya. Dokl. Akad. Nauk SSSR,  
91, 3, 1961, 411 (1963). In Russian.

A. Treitskaya of Russian observatory records has  
shown the existence of rapid variations in both the  
continuous and magnetic fields. The first type is a  
continuous oscillation between about 0.1 and 1.0 Hz  
with a maximum amplitude of 1-4 nT.  
The second type is a  
continuous oscillation with a period of 10 to 40 sec  
and a period of 10 to 40 sec and occurs  
at a frequency of 10 to 40 sec and occurs  
at a frequency of 10 to 40 sec and occurs

*62*

*62*

WILSON, J.G., editor; BERESTETSKIY, V.B. [translator]; TROITSKAYA, V.A.  
[translator]; LUKIRSKIY, P.I., akademik, redaktor; GUROV, K.P.,  
redaktor; SHAPOVALOV, V.I., tekhnicheskiy redaktor.

[Progress in cosmic ray physics] Fizika kosmicheskikh luchei; sovremennye dostizheniya. Perevod s angliiskogo V.B.Berestetskogo i V.A. Troitskoi. Pod red. P.I.Lukirskogo. Moskva, Izd-vo inostrannoi lit-ry, 1954. 437 p. (MIRA 7:12)  
(Cosmic rays) (Nuclear physics)



TROITSKAYA, V.A., D'YAKONOV, B.V., TEKHCNOV, A.N., IVANOV, A.G.

"Relationship Between Earth Currents and Earthquakes" Tr. Geofiz. in-ta AN SSSR,  
No 25, 1954, 181-191

A relationship between the propagation of seismic waves and the appearance of an electromagnetic perturbation, the so-called seismoelectric effect is held possible. The effect originates in slow undulations of the terrestrial core which may propagate as an elastic wave. The noticed coincidences of seismic waves and electric perturbations indicate the necessity of recording the slow motions of the terrestrial core. (RZhFiz, No 10, 1955)

*Troitskaya, V. A.*  
USSR/Geophysics - Conference

FD-2588

Card 1/1            Pub. 44 18/19

Author            : Troitskaya, V. A.

Title             : ~~USSR/Geophysics - Conference~~  
On the International Geophysics Year

Periodical        : Izv. AN SSSR, Ser. geofiz, Jul-Aug 55, 397-399

Abstract          : The author presents the decrees of the Presidium of the Academy of Sciences USSR which establish the International Committee for the preparation and conduction of the International Geophysics Year. She lists name of the scientists, the fields in which they will participate, and the names of the scientific institutions which will participate in this endeavor.

Institution       :

Submitted        :

TROITSKAYA, V.A. kandidat fiziko-matematicheskikh nauk

Earth currents. Priroda 44 no.5:81-85 My '55. (MLRA 8:7)

1. Geofizicheskiy institut Akademii nauk SSSR  
(Electric currents) (Magnetism, Terrestrial)

60-32-2/3

*Troitskaya, V. A.*  
AUTHOR: Troitskaya, V. A.

TITLE: Short-period Perturbations in the Earth's Electromagnetic Field (Korotkoperiodicheskiye vozmushcheniya elektromagnitnogo polya zemli)

PERIODICAL: Trudy Geofizicheskogo instituta Akademii nauk SSSR, 1956, Nr 32, pp 26-61 (USSR)

ABSTRACT: The author presents the results of an analysis of short-period oscillations in the Earth's electromagnetic field with periods varying from 5 to 180 seconds. The high-speed recordings of telluric currents (90 mm an hour and 1 mm a sec), the recordings of such currents at various distantly spaced geographic points, and the highly sensitive recordings of the magnetic field on the A. G. Kalashnikov fluxmeter made it possible to establish a series of new relationships and characteristics

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Short-period Perturbations in the Earth's Electromagnetic  
Field (cont.)

60-32-2/3

of short-period oscillations. In classifying pulsations different vibratory traits of observed oscillations were selected. This differentiation permitted separating the oscillations into two groups: 1) stable oscillations continuing as a rule for several hours in a row, and 2) separate trains of oscillations, which in themselves represent independent groups of vibrations. Both types of oscillations operate on an exact daily run in terms of world time, are characterized by different intervals in their periods and amplitudes of oscillations, and are connected with different sets of perturbations in the Earth's electromagnetic field. The appearance of two types of oscillations different in their characteristics, the regularity of their emergence from day to day, as well as their daily rate when reduced to world time show that the excitation of these oscillations

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Short-Period Perturbations in the Earth's Electromagnetic  
Field (cont.) 60-32-2/3

is linked with the orientation of the north and south magnetic poles of the Earth relative to the Sun. There are 20 figs, 1 table, and 38 references of which 18 are Soviet, 12 English, 4 German and 4 French.

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MM/edv  
May 27, 1958

TROIJSKAYA V. A.

PHASE I BOOK EXPLOITATION

496

Akademiya nauk SSSR. Komitet po geodezii i geofizika

Mezhdunarodnaya assotsiatsiya geomagnetizma i aeronomii; tezisy dokladov na XI General'noy assambleye Mezhdunarodnogo geodezicheskogo i geofizicheskogo soyuza (The International Association of Geomagnetism and Aeronomy; Abstracts of the Reports at the XI General Assembly of the International Union of Geodesy and Geophysics) Moscow, Izd-vo AN SSSR, 1957. 46 p. 1,500 copies printed.

PURPOSE: This booklet is intended for dissemination of abstracts of papers presented by the Soviet members of the International Association of Geomagnetism and Aeronomy at the XI General Assembly of the International Union of Geodesy and Geophysics.

COVERAGE: This booklet with full English translation following the Russian text presents abstracts of papers, mainly on magnetics, telluric currents and auroras, presented by Soviet contributors at the XI General Assembly of the International Union of Geodesy and Geophysics. It was published by the National Committee for Geodesy and Geophysics of the Academy of Sciences of the USSR.

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The International Association (Cont.)

496

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CONTENTS:

Kaleshnikov, A. G., Petrova, G. N., Grabovskiy, M. A. Results of an  
Investigation of Magnetic Properties of Rocks and Geological Bodies

5

Recent laboratory investigations showed that ferromagnetic rocks are nonuniformly magnetized. Remanent magnetism though distributed regularly, does not follow the direction of the magnetizing field. The article evaluates stability and temperature influence on thermo-magnetization. In discussing the magnetic anisotropy the authors consider this property as typical for metamorphic rocks.

Krasovskiy, V. I. Investigations of Aurorae and Night Sky Glow in the USSR

11

The report contains latest data on radiation in the upper atmosphere. Hydroxyl radiation of night sky glow, twilight radiation of sodium and hydrogen emission in the maximum intensity zone of aurorae are discussed.

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Krasovskiy, V. I. The Nature of Radiation in the Upper Atmosphere.

13

Radiation at 100 km from the surface of the earth is connected with the dissociation and formation of molecules. Variations of intensity of radiation are connected with temperature and pressure fluctuations in the upper atmosphere. Primary and secondary radiation of aurorae and their nature are discussed. Secondary radiation can originate as a result of recombination processes, formation of an electric field, and chemical reactions of primary ions and excited products.

Shklovskiy, I. S. Elementary Processes in the Upper Atmosphere as Evidenced by Radiation.

15

In addition to common fluorescence originating in the selective absorption of ultraviolet solar radiation by atoms in the atmosphere with subsequent re-radiation of "softer" quanta, processes of resonance fluorescence take place in the upper atmosphere. With the detection of some lines in a twilight spectrum an estimate can be made of the number of Lyman quanta in short wave radiation from the sun.

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Troitskaya, V. A. Short-Period Oscillations of the Earth's Electro-magnetic Field.

18

Simultaneous studies of telluric currents and magnetic records facilitate the study of short-period oscillations. Experiments, installations for receiving telluric currents, and the basic principles of a proposed classification system for types of oscillations are discussed. The causal genetic relationship between various types of oscillations and the most favorable relative position of the earth and the sun in exciting such oscillations were formulated.

✓ Driatskiy, V. M. Ionosphere Near the Polar Region.

21

Observations made from May 15, 1954 to April 14, 1955 on the drifting station SP-3 include vertical sounding of the atmosphere on a sliding frequency. During the period of minimum solar activity, the number of sun spots in the working period was 8.3. The vertical component of the earth's magnetic field changed from 56,612  $\gamma$  to 3,919  $\gamma$ . The geomagnetic disturbance was much smaller than in polar observatories further south. The behavior of some ionospheric layers is nearly the same as in moderate latitudes and shows the same dependence on the elevation of the sun. Ionization of various layers is pronounced and triple magneto-ionic splitting was observed rather frequently.

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✓ Kalinin, Yu. D. Forecasting Secular Geomagnetic Variations

25

Variation in annual values of geomagnetic elements is the summary effect of changes in the geomagnetic field caused by internal agents ( $\delta f$ ) and by geomagnetic activity ( $\delta f_a$ ). The latter could be completely eliminated by taking average values for 10-11 year cycles. The morphological examination of such factors leads to the establishment of space-time relationships. The effects of internal forces in Eurasia are of a smooth, quasi-periodic character lasting a few decades and the geomagnetic activity follows an eleven year cycle. This makes it possible to forecast average values for a five year period with sufficient accuracy and to construct magnetic charts for the nearest epoch.

✓ Nikol'skiy, A. N. Distribution of Magnetic Disturbances in the Arctic Region Near the Pole

30

Irregular changes in the magnetic field are the main indication of disturbances in the high latitudes. The form and amplitude of the daily rate of disturbances are determined by the effect of the earth's permanent magnetic field on the incoming jets of solar particles. The diurnal variations in high latitudes are

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The International Association (Cont.)

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very complex. Observations near the pole suggest the existence of a second zone of increased intensity and frequency of magnetic disturbances close to 80° geomagnetic latitude. This is well in accord with the studies of auroral and ionospheric disturbances and fits the theoretical findings of Alfvén.

✓ Ben'kova, N. P. Electric Current in Magnetic Storms

33

The regular components of world magnetic and polar storms were studied in world-wide observations from 1932-1933. The potentials of these fields were computed and a system of polar storm currents was reconstructed. An increase in conductivity with depth was determined and a break in it established at 900-1200 km, where Gutenberg and Repetti discovered a discontinuity for P-waves.

✓ Veller, A. Ye. Hydrogen Radiation in the Auroral Spectrum

36

An investigation of hydrogen radiation in the auroral spectrum was conducted at 64° of geomagnetic latitude and in the neighbouring regions. The data obtained concerns the bright beam flash and the afterglow phases. Prolonged exposure spectograms (1-2 hours) in the region of 6,400-6,600Å bear intense bands of the first positive system of  $H_2$ ; there are no evident signs of  $H\alpha$  on the photographs or microphotographs, yet in all seven spectra the presence of  $H\alpha$  lines could be confirmed. Hydrogen radiation is regularly observed in the afterglow spectrum following a normally developing aurora.

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The International Association (Cont.)

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✓ Ivanov, M. M. Magnetic Surveys at Sea in the Non-Magnetic Ship "Zarya".

38

Lack of magnetic observations on the oceans after 1929 makes the study of variations of the earth's magnetic field and the secular changes largely conjectural. Older observations made by the ships "Galileo" and "Carnegie", based on a 100 mile grid, do not reflect regional magnetic anomalies related to the structure or relief of the sea bottom. A proposal has been made for another survey to be conducted by a laboratory ship. The specially built ship "Zarya" with a 600 t. displacement was supplied with everything necessary for a month's voyage. The personnel consisted of 34 persons of which 9 were research workers. The instruments used for measuring magnetic phenomena are: for measuring declination, a 127 mm optical goniometric compass and a range finding compass for continuous recording and measurement of differences between the gyro-course and the magnetic course for the horizontal component, two double magnetic compasses; for measuring H and Z, a two-component magnetodynamic magnetometer and a magnetodynamic T magnetometer with a self orientating indicator. "Zarya" already conducted some experimental work in the Baltic and the North Sea, discovering a considerable number of anomalies. In the future it will make some observations in several regions of the supposed maximum secular movement of magnetic elements.

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The International Association (Cont.)

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- J Petukhov, V. A. Solar Neutron Emission as Sources of Magnetic Disturbances and Aurorae

43

The author discusses the neutron theory explaining the relationship between solar activity and processes occurring on earth, the possible physical processes leading to the formation of a large number of neutrons and the experimental findings in this field, and the determination of velocities of solar particles by time intervals between phenomena occurring on the sun and on earth.

- J Bukhnikkashvili, A. V. and Kebuladze, V. V. The Nature of Regional Telluric Currents and Their Relation to Geology

44

Telluric currents have interested scientists for a long time but the lack of systematic studies and the irregular distribution of stations prevents definite conclusions. Statistical examination of around-the-clock observations at the Dusheti station (Caucasus), led the authors to the opinion that the potential difference in a telluric field can be divided into the constant and the variable components. The latter depend on the sun's diurnal, seasonal, annual and secular variations as well as the time of occurrence of extremes of these variations. At the same time, the meteorological factors and the type

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The International Association (Cont.)

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of electrode grounding play an important part in the creation of a potential. The review analyzes telluric storms and disturbances, their rates, frequencies and amplitudes. Parallelism of the horizontal component of the magnetic and the latitudinal component of the telluric fields is fully established. The application of such currents to the study of geological structures in Georgia seems to be particularly successful in determining the depth of the crystalline basement.

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9-2-58

Card 9/9

PHASE I BOOK EXPLOITATION

781

Troitskaya, Valeriya Alekseyevna

Mezhdunarodnyy geofizicheskiy god (The International Geophysical Year)  
Moscow, Izd-vo "Sovetskaya Rossiya", 1957. 78 p. (Series: Biblioteka v  
pomoshch' lektoru) 36,300 copies printed.

Ed.: Brezanovskaya L. Ya.; Tech. Ed.: Yusfina, N.L.

PURPOSE: This booklet is designed for the general reader without scientific training.

COVERAGE: The book describes in general terms and everyday language the program and objectives of the International Geophysical Year with special emphasis on Soviet participation. In citing the overall number of observatories or stations engaged in a particular phase of investigation the proportion of Soviet posts is also indicated. Thus out of 88 geophysical observatories, 184 auroral observation stations, 36 night sky luminescence observation stations and 78 observatories conducting observations on latitudes and

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The International Geophysical Year

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longitudes, 15, 34, 12 and 31 respectively are Soviet. In connection with upper atmospheric investigations the Soviet Union plans to fire rockets vertically in 3 zones situated along 50-60° East longitude: first zone -- 25 rockets in 1958 from Franz Joseph Land, second zone -- 30 rockets in 1957 from the middle latitudes in the USSR (50-60° North latitude), and third zone -- 40 rockets in 1958 from the Antarctic, mainly from the vicinity of Mirnyy (50-60° South latitude). One of the most important studies to be undertaken during the IGY will be ionospheric research in the Arctic and the Antarctic, close to the so-called auroral zones within the boundaries of which complex ionospheric phenomena take place and which until now have not been observed systematically. Ionospheric stations will be operating for the first time both near the geographic and geomagnetic poles. No less than 34 stations are being set up in the Arctic. Geomagnetism and earth currents will be studied by the USSR with the nonmagnetic ship "Zarya", the equipment of which differs from that on the ships "Galilee" and "Carnegie" in that it permits continuous registration of the magnetic field. The survey made by the "Zarya" will reflect regional magnetic anomalies in the oceans which characterize the structure and relief of the ocean floor. Of particular interest in glaciological research are the studies to be conducted at the newly organized station at

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Suantar-Khayata situated in the currently-developing permafrost region. A panoramic view of the station is included in the text. Two maps and photographs accompany the text.

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AVAILABLE: Library of Congress (QC801.3.T7)

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MM/jmr  
11-10-58

*TROITSKAYA, V.A.*  
POLOSKOV, S.M., doktor fiziko-matematicheskikh nauk, otvetstvennyy redaktor;  
TROITSKAYA, V.A., kandidat fiziko-matematicheskikh nauk, redaktor;  
MUSTEL', E.R., redaktor; MOGILEVSKIY, E.I., kandidat fiziko-matematicheskikh nauk, redaktor; LEYKIN, G.A., kandidat fiziko-matematicheskikh nauk, redaktor; ROKHLIN, I.Ye., redaktor izdatel'stva; SHEVCHENKO, G.N., tekhnicheskii redaktor

[Physics of solar corpuscular fluxes and their effect on the upper atmosphere of the earth; proceedings of a conference of the Commission for solar research] Fizika solnechnykh korpuskuliarnykh potokov i ikh vozdeistvie na verkhniyu atmosferu zemli; trudy konferentsii Komissii po issledovaniyu Solntsa 22-24 noyabrya 1955 g. Moskva, 1957. 289 p.

1. Akademiya nauk SSSR. 2. Chlen-korrespondent Akademii nauk SSSR  
(for Mustel') (Solar radiation) (Atmosphere, Upper)

*Troitskaya, V. A.*

25-7-22/51

AUTHOR: Belousov, V.V., Member-Correspondent, USSR Academy of Sciences  
Troitskaya, V.A., Candidate of Physico-Mathematical Sciences

TITLE: The International Geophysical Year Has Begun (Mezhdunarodnyy  
geofizicheskiy god nachalsya)

PERIODICAL: Nauka i Zhizn', 1957, # 7, p 27-29 (USSR)

ABSTRACT: Over 1,500 scientific stations in the whole world have started to conduct geophysical observations according to a common plan. The importance of such a unique action is enormous. It is hoped that better understanding of meteorological, magnetic, and many other geophysical phenomena will result when all the observations are processed. Weather forecasting, radio communication, navigation etc. will profit by those facts. The USSR will conduct research in 12 different sections of the IGY program by means of 500 observation stations. In this connection rockets and artificial satellites will be used for exploring the earth atmosphere and the physical phenomena taking place in it. Further objectives are the study of cosmic radiation, the origin of cosmic particles, and the ultraviolet and X-ray radiations of the sun. The USSR intends to start rockets

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. The International Geophysical Year Has Begun

25-7-22/51

and satellites at regular intervals during the whole period of the IGY. The common research work will in all probability establish closer relations among scientists of the world and lead to a better understanding among nations. The article contains 8 photos.

ASSOCIATION: Academy of Sciences, USSR (AN SSSR)

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Card 2/2

TROITSKAYA, V.

85-8-6/18

AUTHOR: Troitskaya, V. Candidate of Physico-Mathematical Sciences, Scientific Secretary of the Committee for the International Geophysical Year attached to the Presidium of the USSR Academy of Sciences.

TITLE: Aviation Assists the Scientists (Aviatsiya pomogayet uchenym)

PERIODICAL: Kryl'ya Rodiny, 1957, Nr 8, pp. 10-11 (USSR)

ABSTRACT: The article, written in a popular form, outlines the official program of the International Geophysical Year and explains the import of the various points of the program. The role of the USSR in the carrying out of each of these points is indicated in more or less general terms. More specific information of possible interest is offered in the paragraphs quoted below: (a) "The Soviet Union has set up a National Committee for the International Geophysical Year. The Committee is attached to the Academy of Sciences of the USSR; it is presided by I. P. Bradin, Vice-President of the Academy; among the members of the Committee are the most eminent specialists in the various fields of geophysics and in the

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85-8-6/18

Aviation Assists the Scientists (Cont.)

related branches of Science and Technology. More than 100 Soviet scientific institutions are taking part in the work connected with the preparation of the I.G.Y., and a great number of industrial establishments of the Union are engaged in furnishing the scientists with the necessary instruments and equipment." (b) "In the Antarctic [the Soviet Union] has been conducting a systematic sounding of the atmosphere since November, 1956; for that purpose, helicopters are used." (c) "Wide perspectives to geophysicists through the use of aircraft for the study of the distribution, by latitudes and longitudes, of the neutral element of the cosmic rays - the neutrons. Soviet Union plans to carry out such studies in 1958, using a neutron monitor installed aboard a specially conditioned airplane. The study is planned: in latitude - along the line Moscow-Vladivostok, and in longitude - along the line Moscow-Murmansk." (d) "In 1957-1958, with the assistance of aircraft, Soviet scientists intent to establish in the Antarctic a series of basic gravimetric points, very precisely calculated. These basic points will be supplemented by a few ordinary points, for the establishing of which airplanes type An-2 and helicopters will be used." (e) "An important work has already been accomplished

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85-8-6/18

Aviation Assists the Scientists (Cont.)

with respect to the aerial photographic survey of the region of Knox Coast [Bereg Noksa] in the Antarctic. The scale of the photos is 1/40,000 - 1/50,000. The operation permitted to trace more exactly a long stretch of the shore line, to locate islands and glaciers which were not yet marked on the maps, and to discover oases, i.e. regions which, even in winter-time, remain free of snow. The total area covered by the aerial survey extends already over about 60,000 sq km." (f) The long distance air reconnaissance flights (a total of 29) permitted to form, for the area lying between 80° and 100° longitude East, a clear idea as to the limits to which the ice is spreading northward. On the basis of the observed accumulations of ice and the huge ice-splinters floating off the Shackleton Shelf, a notion was gained as to the general conditions of the drift of the icebergs. Moreover, the aircraft operating in the Antarctic ensured the transportation of the supplies to the stations 'Oazis' and 'Pionerskaya', and made possible an aeromagnetic survey." (g) "During the last season of 1956-1957, the aircraft participating in the complex Antarctic expedition

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Aviation Assists the Scientists (Cont.)

totalled 1,500 flight hours, covered about 300,000 km, and effected more than 200 landings on not-outfitted airfields."  
(h) "Also planned is an extensive study of the Earth's magnetic field and the Earth's magnetic currents. Much attention is given to the study of the little explored short-period fluctuations of the electro-magnetic field (the so-called 'pulsations'). Here, during the last few years, certain interesting regularities have been detected, and it may be expected that the planned studies will achieve good results. For the survey of the magnetic field over the oceans, a special ship, the 'Zarya', was built, equipped with a complete set of most modern magneto-metric instruments."

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Card 4/4

TROITSKAYA, V. A.

10-73/26

AUTHOR

BELOUSOV, V.V., corresponding member of the Academy of Sciences  
U.S.S.R., TROITSKAYA, V.A., cand phys.-math. sc.

TITLE

The International Geophysical Year

PERIODICAL

(Mezhdunarodnyy geofizicheskiy god. Russian)  
Vestnik Akademii Nauk SSSR, 1957, Vol 27, Nr 7, pp 3 - 7 (U.S.S.R.)

ABSTRACT

The results obtained by joint observations considerably facilitate the determination of the laws governing meteorological, magnetic and other phenomena. The U.S.S.R. carries out her works on 15 sections. Altogether 500 Soviet observation stations participate in the program. Meteorological observations are made in 292 places not including the already existing network of hydrometeorological stations. Observations of the magnetic field of the earth are carried out by 30 stations and by the only non-magnetic ship of the world "Zarya". Observations of the northern lights are made by 34 stations, especially by the newly-established optical stations of the arctic. All airplane crews whose flight routes lie north of the Moscow-Vladivostok line also participate in it. A number of stations observe the zodiacal light by means of photoelectrical and photometric spectrographs. The investigation of the ionosphere (according to the method of vertical sounding) is carried out by 25 special stations. 15 observatories are exclusively occupied with the observation of the sun; 19 carry out

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The International Geophysical Year

30-7-1/30

astrometric observations. The northwestern part of the Pacific is examined by seismic depth-sounding. The network of geophysical stations is especially dense in the arctic (along the so-called international meridians). The European-Asiatic observation center of the Geophysical Year is situated in Krasnaya Pakhra near Moscow. For the time being the collected observation results are kept in two places of the earth: in the U.S.S.R. and in the U.S.A.

ASSOCIATION  
PRESENTED BY  
SUBMITTED  
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Not given

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Card 2/2

TROITSKAYA, V.A.

TROITSKAYA, V.A. kandidat fiziko-matematicheskikh nauk.

International Geophysical Year. Rabotnitsa 35 no.5:26-27 My '57.  
(MIRA 10:6)

1. Uchenyy sekretar' Mezhdunarodnogo komiteta po provedeniyu  
Mezhdunarodnogo geofizicheskogo goda.  
(International Geophysical Year, 1957-1958)

TROITSKAYA, V. A.

✓  
V. A. TROITSKAYA

THE MICROSTRUCTURE OF THE MAGNETIC STONES IN  
RESPECT OF FULFILLING  
( FOR THE FIRST TIME IN THE HISTORY OF THE ICY)

Report presented at the CMAI meeting, 1-9 August 1978, Moscow.

TROITSKAYA, V. A.

"Results of the Work of the USSR Earth-Current Stations in the First Half of the IGY,"

paper submitted, 5th Gen. Assembly, CSAGI, Intl. Geophysical Year, Moscow, 1-9 Aug 1958;

TROITSKAYA, V.A.

Conference on rapid variations of magnetic and terrestrial-current  
fields. Mezhdunar.geofiz.god no.4:98-104 '58. (MIRA 11:11)  
(Magnetism, Terrestrial) (Terrestrial electricity)



TROITSKAYA, V.A., kand.fiz.-mat.nauk

First results. Nauka i zhizn' 25 no.5:26-28 My '58.(MIRA 11:5)

1. Uchenyy sekretar' Mezhdunarodnogo komiteta po provedeniyu  
Mezhdunarodnogo geofizicheskogo goda.  
(International Geophysical Year, 1957-1958)

KOROBKOVA, G., NIKITINA, N., ZUBAREVA, E., TROITSKAYA, V.A.

"Giant pulsations in the Soviet Arctic. (For the period 1935-1956)."

report presented at the Intl. Association of Geomagnetism and Aeronomy, Symposium on Rapid Geomagnetic Variations, Utrecht, Netherlands, 1-4 Sep 59.

TROITSKAYA, V.A.

"Continuous pulsations (pc) and pulsation trains (pt) in the Arctic and in the Antarctic."

report presented at the Intl. Association of Geomagnetism and Aeronomy, Symposium on Rapid Geomagnetic Variations, Utrecht, Netherlands, 1-4 Sep 59.

TROITSKAYA, V. A., MELNIKOVA, M.

"On characteristic intervals of pulsations diminishing by periods (IPDP) in the electromagnetic field of the earth and their connection with phenomena in the high atmosphere."

report presented at the Intl. Association of Geomagnetism and Aeronomy, Symposium on Rapid Geomagnetic Variations, Utrecht, Netherlands, 1-4 Sep 59.

TROITSKAYA, V. A.

"Pulsations of beating type (T-1-4 sec) "Pearls" in the electromagnetic field of the earth."

report presented at the Intl. Association of Geomagnetism and Aeronomy, Symposium on Rapid Geomagnetic Variations, Utrecht, Netherlands, 1-4 Sep 59.

BARSUKOV, O.M.; TROITSKAYA, V.A.; PODOL'SKIY, A.D., red.; MARKOVICH,  
S.G., tekhn.red.

[Soviet stations for earth currents] Sovetskie stantsii  
zemnykh tokov. Moskva, 1959. 21 p. (MIRA 13:10)  
(Magnetism, Terrestrial--Observatories) (Earth currents)



89781

S/169/61/000/002/036/039  
A005/A001

9.9842 (also 1041, 1046)

Translation from: Referativnyy zhurnal, Geofizika, 1961, No. 2, p. 51, # 20353

AUTHOR: Troitskaya, V. A.

TITLE: Preliminary Results of Studying the Microstructure of the Most Intense Magnetic Storms by Means of the Short-Periodic Fluctuations

PERIODICAL: V sb.: "Magnitno-ionosfernyye vozmushcheniya", No. 1. Moscow, AN SSSR, 1959, pp. 24-29

TEXT: The author considers the short-periodic fluctuations during the ten most intense magnetic storms in the period from September 1957 to February 1958. Data are used obtained by the Soviet observatories in the USSR, in the Arctic and the Antarctic regions. The short-periodic fluctuations had periods of 2-6 sec in some storms and of 10-15 sec in other ones. Sudden commencements contained short-periodic fluctuations with periods of 8-15 sec. During storms, short-periodic fluctuations of the pulse-type with periods of 1-4 sec arose at low latitudes simultaneously with aurora. The development of short-periodic fluctuations during storms is mainly of global scale. V. A. Translator's note: This is the full translation of the original Russian abstract.

Card 1/1



TROITSKAYA, V.A.

Fifth Assembly of the Special Committee for the International  
Geophysical Year. Izv. AN SSSR. Ser. geofiz. no. 3:493-502 Mr '59.  
(MIRA 12:4)

(Geophysical research)

TROITSKAYA, V.A.

Central publications on the results of the International Geophysical  
Year. Mezhdunar. geofiz. god no.6:74-77 '59. (MIRA 12:11)  
(International Geophysical Year, 1957-1958)

SOV/49-59-6-20/21

AUTHOR: Troitskaya, V. A.

TITLE: ~~The International Conference of the Euro-Asian Region,~~  
February 4-7, 1959.

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geofizicheskaya,  
1959, Nr 6, pp 933-935 (USSR)

ABSTRACT: The Conference took place in Moscow, where the following states taking part in the International Geophysical Year participated - East Germany, Poland, Czechoslovakia, Rumania, Hungary, Bulgaria, N. Korea, Albania, Mongolia, USSR, Vietnam and Yugoslavia. The Conference decided the following: first, to complete all the observations made during the IGY, second, to co-ordinate all the investigations carried out in the region occupied by the above-mentioned countries, third, the mutual exchange of information, fourth, organizing local meetings and conferences. In particular, the following tasks are to be carried out: the effect of the Dracon stars on the ionosphere is to be studied in October 1959; the activity of the sun is to be observed by the Crimean observatory and the Ondrejov station (Czechoslovakia); Poland and E. Germany are to begin a survey of the W. Baltic as part of the general investigations of the ocean.

Card 1/1

TROITSKAYA, V.A., kand.fiziko-matem.nauk

Characteristics of the excitation of short-period variations in  
the earth's electromagnetic field in Antarctica. Inform.biul.  
Sov.antark.eksp. no.12:33-36 '59. (MIRA 13:6)

1. Institut fiziki Zemli Akademii nauk SSSR.  
(Antarctic regions---Terrestrial electricity)

3.9000

66162

~~3(6)~~

AUTHORS:

Troitskaya, V. A., Mel'nikova, M. V.

SOV/20-128-5-14/67

TITLE:

On Characteristic Intervals of Pulsations Diminishing in Periods (10-1 sec) in the Electromagnetic Field of the Earth and Their Connection With Phenomena in the Upper Atmosphere

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 5, pp 917-920 (USSR)

ABSTRACT:

Extremely fast recording (1/2 mm/sec) of variations of the electromagnetic field of the Earth during violent magnetic storms revealed the existence of intervals of short-period pulsations of periods diminishing from 10 to 1 sec. Data evaluated up to the present show that these intervals of short-period pulsations constitute that morphological kind of static of the terrestrial electromagnetic field which is directly correlated to the development of strong atmospheric in the upper stratosphere. By means of the extremely fast recording mentioned above it is possible to determine the point of time at which magnetic storms begin, and when the most intense atmospheric in the upper stratosphere take place. A scheme of the development of these intervals of short-period pulsations is given in a diagram. However, the relative duration of the various pulsations is not expressed

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On Characteristic Intervals of Pulsations Diminishing in Periods (10-1 sec) in the Electromagnetic Field of the Earth and Their Connection With Phenomena in the Upper Atmosphere SOV/20-128-5-14/67

in this scheme. The most characteristic element of these periodic pulsations are pulsations having a period of 2 to 4 seconds. Pulsations of precisely these periods can continue unattenuated for some dozens of minutes. An amplitude modulation passing over into a pulsation is characteristic of all pulsations occurring in this interval. According to the data available at present 1 to 4 intervals of short-period pulsations may be observed in the course of a magnetic storm. An interval of this kind usually lasts no longer than 1 h. All the big storms occurring during the International Geophysical Year contained intervals of the kind discussed in the present paper. The second diagram shows the propagation and development of the short-period pulsations of September 29, 1957 for various stations. This diagram shows, among others, the following: (1) There were 2 intervals of short-period pulsations during the magnetic storm of September 29, 1957. The first lasted about twice as long as the second. Both began with irregular pulsations and ended with pulsations of short periods. (2) The development of short-

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On Characteristic Intervals of Pulsations Diminishing in Periods (10<sup>-1</sup> sec) in the Electromagnetic Field of the Earth and Their Connection With Phenomena in the Upper Atmosphere SOV/20-128-5-14/67

period pulsations indicates simultaneousness of the beginning and end of the pulsations. This simultaneousness extends over a vast territory. (3) The periods of the pulsations within the interval of short-period pulsations vary in a similar manner (with slight changes) at all stations. (4) Apart from the excitation of the short-period pulsation described above with reference to the universal time, this phenomenon is influenced essentially also by conditions determined by the local time. Similar investigations were made of the other storms listed in the present paper together with the date of occurrence. In most cases the interval of short-period pulsations begins at 5 p.m. approximately Greenwich time (for western stations). The beginning and development of these short-period statics correspond to the appearance and development of red polar aurorae. Diagrams illustrating the state of the ionosphere on July 8, and on September 4, 1958 are attached. There are 3 figures and 3 Soviet references.

Card 3/4

66162

On Characteristic Intervals of Pulsations Diminishing in Periods ( $10^{-1}$  sec) in the Electromagnetic Field of the Earth and Their Connection With Phenomena in the Upper Atmosphere SOV/20-128-5-14/67

ASSOCIATION: Institut fiziki Zemli im. O. Yu. Shmidta Akademii nauk SSSR  
(Institute of Physics of the Earth imeni O. Yu. Shmidt of the Academy of Sciences, USSR)

PRESENTED: July 6, 1959, by D. I. Shcherbakov, Academician ✓

SUBMITTED: July 4, 1959

Card 4/4



3,9410

29893  
S/169/61/000/009/055/056  
D228/D304

AUTHOR: Troitskaya, V. A.

TITLE: Main characteristics of the earth-current field in the Antarctic

PERIODICAL: Referativnyy zhurnal. Geofizika, no. 9, 1961, 28, abstract 9G226 (V sb. Sov. antarkt. ekspeditsiya 9, L., Morsk. transport, 1960, 10-24)

TEXT: Observations of earth currents in the period of the IGY were organized at Mirnyy and Oazis. Continuous recordings with an evolute of 90 mm/hr., 30 mm/min., and also 22 mm/hr.—at Oazis—were obtained. Large (up to 1000 – 2000 mv/km) amplitudes of all forms of earth-current disturbances are characteristic of the Antarctic. The field's maximum disturbance occurs at 12 – 14 hrs. local time. The direction of the earth currents, which is the same for all forms of disturbance, amounts to  $\sim 20^\circ$  with the latitudinal circle at Mirnyy and coincides with the shoreline contours; at Oazis it is  $80^\circ$ . Steady fluctuations are a typical

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29893  
S/169/81/000/009/055/056  
D228/D304

Main characteristics of...

field disturbance for the Antarctic. They are observed at both stations—chiefly at 22 - 12 hrs. universal time—and have periods  $T \sim 15 - 45$  sec. and the amplitudes  $A \sim 50 - 220$  mv/km. The polar-night effect is displayed in the steady fluctuations: the amplitudes and overall number of hours with fluctuations decrease abruptly at night. Train-type fluctuations are not characteristic of the Antarctic. It is only possible to distinguish them reliably by comparison with mid-latitude recordings; they are chiefly observed in the second half of the day and have  $A \sim 50 - 250$  mv/km and  $T = 50 - 150$  sec. Diagrams of the amplitudinal distribution of short-period fluctuations, sudden outbreaks, and coils are given. [Abstracter's note: Complete translation.]

Card 2/2

45608

S/732/60/012/000/004/004  
D207/D307

3.94/0

AUTHOR:

Troitskaya, V.A.

TITLE:

Observations of telluric currents in the Antarctic

SOURCE:

Sovetskaya antarkticheskaya ekspeditsiya. Trudy.  
t. 12: Pervaya i vtoraya kontinental'nyye ekspedit-  
sii, 1955-1968 gg.; materialy nablyudeniya. Lenin-  
grad, Izd-vo "Morskoy transport," 1960, 501-503

TEXT:

Telluric currents were recorded continuously during  
July-December 1957 at two Antarctic stations: Mirnyy and Oasis. The  
records were taken at rates ranging from 22 mm of the recording tape  
per hour to 30 mm per min. The sensitivity ranged from 3 to 50 mV/km,  
depending on the station and the direction of the conductor buried  
in the ground and used to record these currents. The observations  
at Mirnyy were carried out by Junior Scientific Officer of the Insti-  
tut fiziki Zemli AN SSSR (Institute of Physics of the Earth, AS USSR)  
L.N. Baranskiy and at Oasis they were taken by Engineer of the Otdel'  
elektrometrii (Electrical Measurement Division) of the Institute for

Card 1/2

Observations of telluric currents ...

S/732/60/012/000/004/004  
D207/D307

Physics of the Earth, AS USSR, N.L. Naumenkov. The results were analyzed by the staff members of the Electrical Measurement Division of the Institute of Physics of the Earth, AS USSR, under the direction of Junior Scientific Officer O.M. Barsukov and Senior Scientific Officer V.A. Troitskaya; they are given in tables. The following conclusions were drawn from the amplitude and period distributions of telluric currents: 1) pulsation trains (50-150 mV/km amplitude, 50-130 sec period) were not the characteristic feature of telluric currents in the Antarctic; 2) the amplitudes of continuous pulsations were 70-220 mV/km at Oasis and 20-170 mV/km at Mirnyy; their periods were 15-45 sec; 3) the amplitudes of bay-type disturbances, sudden commencements and pulses were 0.5-2.5 V/km at Oasis; 4) the direction of telluric currents, whether continuous pulsations or disturbances, were stable: 80° to the East-West direction at Oasis, 23° to E-W at Mirnyy, which is along the shoreline. There are 6 tables. [Abstracter's note: These tables were at the end of the article and are missed out of the photocopy; this affects the page numbers of the article.]

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S/169/61/000/009/051/056  
D228/D304

3,9410

AUTHOR: Troitskaya, V. A.

TITLE: Earth-current observations in the Antarctic

PERIODICAL: Referativnyy zhurnal. Geofizika, no. 9, 1961, 27,  
abstract 9G222 (V sb. Sov. Antarkt. ekspeditsiya 12,  
L., Morsk. transport, 1960, 501-528)

TEXT: The diurnal variations of earth currents are given together with tables of the mean-monthly values of disturbances; the relative mean-monthly values of disturbances from recordings with an evolute of 90 mm/hr.; tables of trains (pt) and stable fluctuations (pc); and lists of bay-type disturbances, sudden outbreaks, and impulses. The observations were carried out at Mirnyy and at Oazis from July to December 1957. ✓  
[Abstracter's note: Complete translation.]

Card 1/1

86 224

3.9100  
9.9840

S/049/60/000/009/002/004  
E201/E191

AUTHOR: Troitskaya, V.A.

TITLE: Effects of High-altitude Nuclear Explosions<sup>19</sup> on  
Telluric Currents

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geofizicheskaya,  
1960, No. 9, pp.1321-1327

TEXT: In August-September 1958 U.S.A. carried out a series of high-altitude nuclear explosions (Refs 1, 2). Three of them, known as Argus I, II and III, were carried out at a height of 500 km above sea level in the South Atlantic (details are given in Table 1). Two further explosions took place at much lower heights (below the ionosphere); they were carried out over the Pacific Ocean in the region of the Johnston Island. These explosions disturbed the geomagnetic field of the Earth, the ionosphere, the radiocommunication and the aurorae. Analysis of all these disturbances is of great interest because the effects can be related to a known source, i.e. relativistic electrons produced by these explosions and captured by the magnetic field of the Earth. The author reports the first results of an analysis of short-period fluctuations (SPF) of the terrestrial electromagnetic field  
Card 1/ 3

86224

S/049/60/000/009/002/004  
E201/E191

Effects of High-altitude Nuclear Explosions on Telluric Currents

produced by these high-altitude explosions. The author analysed 24-hour record of telluric (earth) currents scanned at the rate of 30 mm/min, using the data recorded by stations in the Arctic and Antarctic regions and in middle latitudes. Records of SPF obtained at "Borok", "Alushta", "Alma-Ata", "Shatsk", "Lovozero" and "Mirnyy" stations after Argus II and Argus III are shown in Figs 1 and 2; the times of commencement of SPF at these stations are listed in Table 2. The records obtained at the "Alma-Ata" and "Petropavlovsk" stations after the second Johnston Island explosion are shown in Fig.3; the times of commencement of SPF are listed in Table 3. The results show that a single intrusion of charged particles into the upper atmosphere produced SPF over practically the whole Earth. The rate of propagation of SPF was close to the velocity of light, or at least much greater than the accepted velocities of propagation of magnetohydrodynamic waves. We may conclude that natural SPF, i.e. those not produced by Man, indicate intrusion of clouds or streams of charged particles from cosmic space into the upper atmosphere. A more detailed analysis of the recorded SPF will be given in later papers.

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86224

S/049/60/000/009/002/004

E201/E191

Effects of High-altitude Nuclear Explosions on Telluric Currents

Acknowledgements are made to the staff and leaders of the telluric current stations: I.I. Rakityanskiy, M.V. Okhatsinskaya, K.Yu. Zybin, R.V. Shchepetnov, V.V. Novysh and I. Plyashkevich, for making their records available to the author.

There are 3 figures, 3 tables and 12 references: 2 Soviet, 9 English and 1 French.

ASSOCIATION: Akademiya nauk SSSR, Institut fiziki zemli  
(Physics of the Earth Institute, AS USSR)

SUBMITTED: June 1, 1960

Card 3/3



TROITSKAYA, V.A. [Troits'ka, V.A.], kand.fiz.-mat.nauk (Moskva)

Under the banners of 66 countries. Nauka i zhyttia 10 no.5:20-25  
My '60. (MIRA 13:7)  
(International Geophysical Year, 1957-1958)

TROITSKAYA, V.A., kand.fiz.-mat.nauk

Under the banners of 66 countries. Nauka i zhizn' 27 no.5:11-16  
My '60. (MIRA 13:7)  
(Geophysics--International cooperation)

TROITSKAYA, V. A.; ALPEROVICH, L. V.; MEDNIKOVA, M. V.; BULATOVA, G. A.

"Fine Structure of Magnetic Storms in Respect of Pulsations. " ((II-1B-3))

report submitted for the Intl. Conf. on Cosmic Rays and Earth Storm (IUPAP)  
Kyoto, Japan 4-15 Sept 1961.

TROITSKAYA, V.A., ROKITVANSKY, I.I., ZYBIN, K.YU., SHEPETNOV, R.V.,  
and ROKITYANSKAYA, D.A.,

"The Connection of Pc and Pt Pulsations with Magnetic Storms,"  
report presented at the Intl. Conference on Cosmic Rays and  
Earth Storms, Kyoto, Japan, 4-15 Sept 1961.

TROITSKAYA, V.A., ROKITYANSKY, I.I., ZYPIN, K.YU., SHEPETNOV, R.N.,  
and ROKITYANSKAYA, D.A.,

"The Fine Structure of Magnetic Storms with Respect to  
Pulsations with Periods Less than 15 Sec,"

report presented at the Intl. Conference on Cosmic Rays and  
Earth Storms, Kyoto, Japan, 4-15 Sept 1961.

TROITSKAYA, V. A., ALPEROVICH, L. V. and MEDNIKOVA, M. V.

"The Fine Structure of Magnetic Storm in Respect of Pulsations"

Report presented at the International Conference on Cosmic Rays and  
Earth Storm, 4-15 Sep 61, Kyoto, Japan.

3.9410 (1482)

29731

S/169/61/000/008/052/053

A006/A101

AUTHOR: Troitskaya, V.A.

TITLE: Stable oscillations and train-type oscillations in the Arctic and Antarctic

PERIODICAL: Referativnyy zhurnal. Geofizika, no. 8, 1961, 42-43, abstract 80282 (V sb. "Korotkoperiod. kolebaniya elektromagnitn. polya Zemli, no. 3", Moscow, AN SSSR, 1961, 41 - 61, English summary)

TEXT: Observations of short-period oscillations with  $T \sim (10 \div 100)$  sec were prior to the IGY carried out mainly in middle and low latitudes; the following classification was employed: stable short-period oscillations (pc) and trains (pt). One of the primary problems of studying telluric currents in polar regions was to reveal the applicability of this classification of short-period oscillations. Results are described which were obtained during the processing of telluric current recordings with 90 mm/h time base and partially with 30 mm/min time base at Soviet stations in the Arctic and Antarctic. Pc with  $T \sim (15 \div 40)$  sec are characteristic of both polar regions and middle latitudes. During years of maximum solar activity, Pt in the polar regions are either one of the elements

Card 1/2

29731

S/169/61/000/008/052/053

A006/A101

Stable oscillations and train-type oscillations ...

of polar disturbances, or individual disturbances of insignificant nature. It is expedient to consider for polar regions two more types of stable oscillations besides regular pc with maximum recurrence around midday, namely: a) short-period oscillations with 5 - 15 sec periods (short-period irregular pulsations - sip) differing from regular pc by an irregular shape; they damp rapidly with the latitude and their maximum recurrence is 22 - 04 hours local time in the diurnal run; sip are well correlating with aurora polaris; b) irregular pc with  $T \sim (50 \div 90) \text{ sec } (pc^0)$  have been well observed in middle latitudes, but are particularly typical and intensive in polar regions. The diurnal run of  $pc^0$  is similar to that of pc, but their seasonal run is sharply different. For regular pc in the Arctic and Antarctic the effect of the polar night was revealed: the pc number drops abruptly in the middle of the polar winter. Therefore the equinox periods are most favorable for the global propagation of pc. A great number of cases was revealed when pc and pt were simultaneously originated in both the northern and southern hemisphere over great spaces. A distinct connection of middle-latitude pt and polar disturbances was as yet not established. The diurnal runs of regular pc and pt in the Arctic and Antarctic are equal to and similar to pc and pt runs in middle latitudes. The amplitudes of short-period oscillations in the Arctic and Antarctic are very high, being tens and hundreds of mv/km.

X

[Abstracter's note: Complete translation]

K. Zybin

Card 2/2



29729  
S/169/61/COO/008/048/053  
A006/A101

3.9110 (1121,1482)

AUTHORS: Zubareva, E.P., Korobkova, G.I., Nikitina, N.M., Troitskaya, V.A. ;

TITLE: Giant pulsations in Soviet Arctic during 1935 - 1956

PERIODICAL: Referativnyy zhurnal. Geofizika, no. 8, 1961, 39, abstract 8G262  
(V sb. "Korotkoperiod. kolebaniya elektromagnitn. polya Zemli, no. 3", Moscow, AN SSSR, 1961, 76 - 82, English summary)

TEXT: The study of giant pulsations was carried out on the basis of standard recordings of the magnetic field with 20 mm/h scanning from data of the following 6 observatories: Dixon, Wellen, Matochkin Shar, Tiksi, Chelyuskin and Tikhaya Bay. The greatest number of giant pulsations was recorded at the Wellen and Dixon stations. Usually, giant pulsations were observed with T of about 60 and 90 seconds. For a number of stations T was also about 45, 75 and 135 sec. It is possible that for giant pulsations there are one or two basic periods, whose different harmonics appear differently depending on the local conditions of the given station. The amplitudes of giant pulsations vary within the limits from a few  $\gamma$  to several tens of  $\gamma$ . At Dixon and Wellen giant pulsations arise mainly during the first half of the day. On Dixon the number of giant pulsations

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Giant pulsations in Soviet Arctic during 1935-1956

29727  
S/169/61/000/008/048/053  
A006/A101

increases towards the equinox, for the Wellen station seasonal changes are less marked. Simultaneous giant pulsations on a number of stations are rather seldom, but some giant pulsations were recorded at the same time at Dixon and Wellen. Sometimes giant pulsations are excited during the day at different but close hours; in the majority of such cases they arise first at the stations located more to the east. It is concluded that giant pulsations are disturbances of the terrestrial electromagnetic field and are typical of polar aurora zones. They damp rapidly to the north and south of the aurora. ✓

K. Zybin

[Abstracter's note: Complete translation]

Card 2/2

3,9110 (1121)  
3,9410 (1482)

29889  
S/169/61/000/009/050/056  
D228/D304

AUTHOR: Troitskaya, V. A.

TITLE: Fluctuations of the pulsation type (pearls) in the  
earth's electromagnetic field ( $T \sim 1 - 4$  sec.)

PERIODICAL: Referativnyy zhurnal. Geofizika, no. 9, 1961, 27,  
abstract 9G220 (V sb. Korotkoperiod. kolebaniya  
elektromagnitn. polya Zemli, no. 3, M., AN SSSR, 1961  
89-99)

TEXT: Fluctuations of the pulsation type ("pearls") with  $T \sim (1 \div 4)$   
sec. may arise as separate splashes with a duration of 1 - 2 min. and as  
long (tens of minutes) series of oscillations of the pulsation type with  
a constant period. "Pearls" were investigated on the basis of readings  
throughout the day with an evolute of 30 mm/min. obtained during the  
IGY by the network of Soviet earth-current stations. The amplitude of  
the "pearls" in the earth currents is  $(0.01 \div 0.1)$  mV/km. In relatively  
quiet conditions, the amplitudes in the magnetic field are  $\sim (0.001 \div$

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Fluctuations of the...

29889  
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D228/D304

0.05)γ . At the time of magnetic storms, the amplitudes increase considerably, reaching some mv/km in the earth currents. "Pearls" are usually displayed at one or two stations; sometimes (both on quiet and disturbed days) the excitation of these pulsations was observed simultaneously in the Arctic, Antarctic, and middle latitudes. "Pearls" are more often observed in the evening, night, and early morning. They are one of the characteristic elements of the microstructure of magnetic storms, and their excitation coincides with the beginning of disturbances in the atmosphere's high layers. It is possible that the excitation of "pearls" is controlled by both local and universal time. [Abstracter's note: Complete translation.]

Card 2/2

38251  
S/169/62/000/005/093/093  
D228/D307

3.2410 (1205, 2705, 2805)

3.9110

AUTHOR:

Troitskaya, V. A.

TITLE:

The relation of short-period fluctuations of the earth's electromagnetic field to the increase of cosmic radiation in the stratosphere.

PERIODICAL:

Referativnyy zhurnal, Geofizika, no. 5, 1962, 33, abstract 5G237 (V sb. Kosmich. luchy, no. 4, M., AN SSSR, 1961, 138-145)

TEXT: According to theoretical notions the invasion of corpuscular flows in the upper atmosphere must be displayed in the electromagnetic field's short-period fluctuations (SPF). As has been shown, the invasion of charged particles at one point of the upper atmosphere during high-altitude nuclear explosions induces in the earth's electromagnetic field SPF with periods of 1 - 5 sec. It can be expected that the strengthening in the cosmic radiation intensity in the stratosphere, which is associated with the incursion of protons of a solar origin, should coincide in time with the ex-

Card 1/3.

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D228/D307

The relation of ...

citation of SPF. The analysis of such coincidences is impeded by the fact that observations of the intensity of cosmic rays are not made more often than several times a day. The comparison of several cases of the increase in the cosmic ray intensity in the stratosphere for the stations Murmansk, Minneapolis, and Yakutsk with the records of rapidly scanned (30 mm/min) telluric currents, obtained at the Soviet network of stations, testifies to the excitation of characteristic pearl-type fluctuations in periods of increased cosmic ray intensity (July 11, 1959, at 05, 08, and 11 hrs. world time; July 15, 1959, at 05 hrs.). The pearls are normal sinusoidal oscillations, having the character of beats and periods of 1 - 4 sec. If the field is disturbed, the likelihood of observing pearls decreases, since the upper atmosphere's structure is disturbed, and the pearls change into irregular oscillations with a period close to that of the pearls (for example, on July 16, 1959, at 23-24 hrs.). Interesting variations in the cosmic radiation intensity at the moment of a clear splash of SPF with periods of ~2 sec were observed on July 9, 1959, at Yakutsk. —A sharp change in the cosmic ray intensity was detected by the

Card 2/3

The relation of ...

S/169/62/000/005/093/093  
D228/D307

2nd Soviet satellite on November 7, 1959, during the passage of the interval of fluctuations with a diminishing period (KUP) / Ab-  
stracter's note: Meaning of KUP not known / of an electromagnetic storm. The first results of the study of the correlations of SPF and changes in the intensity of cosmic rays in the stratosphere show the high degree to which these phenomena are related. Since the registration of SPF is very simple experimentally, the resulting data can supplement the direct measurements of the intensity of cosmic radiation in the stratosphere. On the other hand, stratospheric measurements can be used to interpret the nature of SPF.  
/ Abstracter's note: Complete translation. /

Card 3/3.

TROITSKAYA, V.A.

Conference on fast variations of the earth's electromagnetic field  
and earth currents. Izv. AN SSSR. Ser. geofiz. no.10:1547-1548  
0 '61. (MIRA 14:9)

(Magnetism, Terrestrial--Congresses)  
(Terrestrial electricity--Congresses)



SILKIN, Boris Isaakovich; TROITSKAYA, Valeriya Alekseyevna; SHEBELIN, Nikolay Vissarionovich; BELOUSOV, V.V., otv. red.; IORDANSKIY, A.D., red. izd-va; LYUBIMOVA, Ye.M., red. izd-va; ASTAF'YEVA, G.A., tekhn. red.

[Our unknown planet] Nasha neznakomaya planeta; itogi Mezhdunarodnogo geofizicheskogo goda. Moskva, Izd-vo Akad.nauk SSSR, 1962. 292 p. (MIRA 15:12)

1. Chlen-korrespondent Akademii nauk SSSR (for Belousov). (Earth)

34919

S/049/62/000/002/005/005  
D213/D301

3,1810

AUTHORS: Troitskaya, V.A., Al'perovich, L.V. and Dzhordzhio,  
N.V.

TITLE: On the relation between short-period pulsations in  
the electromagnetic field of the earth and polar  
auroras

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya geofiziches-  
kaya, no. 2, 1962, 262-270

TEXT: In order to investigate the nature of short period  
irregular pulsations (SIP), the authors have carried out an analysis  
of SIP's in the electric and magnetic fields of the earth at the  
Lovozero Station, and of visual and electrophotometric observations  
of polar auroras at the Loparskaya Station. Tapes from the Murmans-  
kaya variatsionnaya stantsiya IZMIRAN (Murmansk Variational Station  
of IZMIRAN) were also used in the analysis. Details of the appara-  
tus employed were reported by O.M. Barsukov and V.A. Troitskaya  
(Ref. 1: Soviet Earth-Current Stations, IGY, 1959). An analysis has

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On the relation between short-period... S/049/62/000/002/005/005  
D218/D301

also been made of the correlation between the SIP's and the electrophotometric observations of the auroras. The correlation between the SIP's and auroral forms was as follows: rays (93%), bands with ray structure (86%), draperies (100%), corona (82%), feeble glow (92%), homogeneous bands (73%), homogeneous quiet arcs (76%), diffused luminous surfaces (80%), pulsating surfaces (85%). These correlations are based on a total number of 472 electrophotometric measurements. The short period pulsations are the fine structure of bays and other forms of geomagnetic field disturbances, and their periods lie between 1 and 20 seconds, with a most probable value at about 5-6 seconds. A preliminary analysis of the distribution of short period pulsations over the globe shows that the entry of corpuscular streams, giving rise to the pulsations, into the Arctic or Antarctic region may be both symmetric and nonsymmetric. There are 3 figures 2 tables and 14 references: 6 Soviet-bloc and 8 non-Soviet-bloc.

ASSOCIATION: Akademiya nauk SSSR Institut fiziki zemli (Academy of Sciences, USSR, Institute of Physics of the Earth)

SUBMITTED: May 18, 1961

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3510.6  
S/030/62/000/003/005/007  
B142/B104

3.1800 (1041, 1046)

AUTHOR: Troitskaya, V. A., Candidate of Physics and Mathematics

TITLE: "Terrestrial storms" and geophysical aspects of research of cosmic rays

PERIODICAL: Akademiya nauk SSSR. Vestnik, no. 3, 1962, 51-55

TEXT: An international symposium was held in Kyoto, Japan, in September 1961, at which reports on magnetic terrestrial storms, geophysical aspects of research of cosmic rays, and cosmic radiation were delivered in three separate conferences. Fluctuations from a few tens to about 200 gamma always occur in the terrestrial magnetic field near the geomagnetic pole owing to the solar wind, a steady corpuscular radiation from the sun. It turns into magnetic storm during solar eruptions. Already before the start of the magnetic storm, particles coming from the sun affect the terrestrial field, which leads to an increase of the magnetic horizontal component. After the end of the storm, the terrestrial field still shows strong fluctuations for some days (noticeable at frequencies of some tens of kilocycles/sec); these fluctuations may cause

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"Terrestrial storms" and...

changes of the atomic oxygen in the ionosphere. The atmospheric singing, a low-frequency radiation of 100-1000 cps, also increases during magnetic storms. The horizontal magnetic field component is reduced during magnetic storms both on the earth's surface and at a distance of some million kilometers. Thus, fluctuations in the magnetic field are not only caused by ionospheric currents but also by cosmic effects during magnetic storms. Studies of the ionosphere in the polar regions showed a spiral distribution of fluctuations in analogy to the magnetic activity. The absorption in the polar cap (radio interference) is explained by irradiation of solar protons with energies of some 10-100 million ev. By observing the polar lights, the belt of their formation on the northern and southern hemispheres of the earth was bounded: it coincides with the projection on the earth's surface of a circle in the equatorial plane at a distance of 7.13 earth's radii. The polar lights on the northern hemisphere mainly move from east to west, and from north to south. "Red arcs" of some 1000 km length and about 600 m width were observed in moderate latitudes at 250-400 km altitude. The dependence of their luminous intensity on the number of high-energy particles in the F-2 layer of the ionosphere was established by means of artificial satellites.

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Rapid changes in the electromagnetic field were studied in the arctic and antarctic zones, the equatorial region, and in cosmic space; steady fluctuations with periods of 1-300 sec were found at the boundary of the terrestrial magnetic field. Observations of the magnetic field and the terrestrial currents in this frequency range are expected to give information on processes taking place at these distances (10-15 earth's radii). Attempts were made to forecast solar eruptions for space flights. The Forbusch effect was studied. A current ring round the earth at a distance of 7-10 earth's radii is assumed, since protons of 75 Mev and less are incident at the geomagnetic latitude of  $50^{\circ}$ , and not protons of 250-400 Mev as would correspond to a dipole magnetic field. With increasing activity, the current in the ring may increase and the ring may approach the earth. The position of the cosmic equator was determined by measuring the changes of cosmic radiation during 24 hr. Its position fluctuates according to the change in cosmic radiation as affected by clouds of solar plasma. The interplanetary plasma is investigated by rockets, satellites, research on magnetic storms, polar absorptions, and theoretical studies. At a distance of 12-14 earth's radii, rocket measurements showed plasma oscillations similar to shockfree magneto- X

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"Terrestrial storms" and...

acoustic waves. They propagate in stronger magnetic fields, may heat the upper atmosphere and cause a convection current. Particles erupting from the sun are assumed to propagate in channels which join earth and sun and exist for a few days. A magnetic field of 1-100 gamma exists in their interior. S. Chapman and W. Ferraro's theories have been corrected by recent insights. The measurement of the electric field of the exosphere is also of importance. In the hydromagnetic theory of the processes during magnetic storms, it must be considered that the charged particles behave differently. Particles with  $10^7$ - $10^8$  ev energies are moving (as calculated by K. Sterner), and particles with lower energies are forming plasma and obey the laws of magneto-hydrodynamics. An "International Sun Year" is planned for 1964/65, a period of minimum solar activity; international research will be conducted by a joint plan in cooperation with the International Association of Geomagnetism and Aeronomy. There is 1 Soviet reference.

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TROITSKAYA, V.A.

International symposium on magnetic storms and cosmic rays. Izv.  
AN SSSR. Ser. geofiz. no.6:857-864. Je '62. (MIRA 15:6)  
(Magnetic storms—Congresses) (Cosmic rays—Congresses)



TROITSKAYA, V.A.

International Symposium on Geomagnetic Storms and Cosmic Rays.  
Geofiz.biul. no.12:14-26 '62. (MIRA 16:5)  
(Magnetic storms) (Cosmic rays)

TROITSKAYA, V.A.

"Rapid variations."

Report submitted to the Symposium on Results of the IGY-IGC (Intl.  
Geophysical Year) Los Angeles, California 12-16 Aug 1963

TROITSKAYA, V.A., kand. fiz.-matem. nauk

Visiting scientific institutions in Ghana. Vest. AN SSSR 33  
no.5:83-86 My '63. (MIRA 16:6)

(Ghana—Research)

TROITSKAYA, V.A.; SHCHEPETNOV, R.V.

Relationship between cycles of solar activity and the intensity and frequency of inducing brief variations in the earth's electromagnetic field. Prikl. geofiz. no.37:95-101 '63. (MIRA 16:10)

TROITSKAYA, V. A.; BOLSHAKOVA, O. V.

"Continuous Pulsations of the Earth's Electromagnetic Field and the Dynamics of Magnetosphere."

paper submitted for Ultra Low Frequency Electromagnetic Fields Symp, Boulder, Colo, 17-20 Aug 64.

Inst of Geophysics, AS USSR.

ACCESSION NR: AP4013733

S/0030/64/000/001/0022/0025

AUTHOR: Troitskaya, V. A. (Candidate of physico-mathematical sciences)

TITLE: Rapid variations in the earth's electromagnetic field, and processes in the upper atmosphere

SOURCE: AN SSSR. Vestnik, no. 1, 1964, 22-25

TOPIC TAGS: electromagnetic field, earth's electromagnetic field, atmosphere, upper atmosphere, short period oscillation, wave train, steady state oscillation, magnetosphere

ABSTRACT: Recent studies have shown that short-period oscillations in the electromagnetic field may be used as delicate indirect criteria defining changes in the state of the upper atmosphere. The first classification of these short-period oscillations was made in March 1957, embracing the spectral range from 10 to 150 sec. Two basic types of oscillations were recognized: wave trains and steady-state oscillations. Investigations during the International Geophysical Year have shown this classification to be inadequate and have led to a substantial broadening

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ACCESSION NR: AP4013733

of the spectral range for such oscillations as well as to the introduction of new principles to serve as a basis for classification. The spectral range of oscillations now known and studied extends from periods of a few tenths of a second to 7-10 minutes. It has been found essential to have information on these short-period oscillations in order to make practical studies on structures of the earth's crust and to explore for mineral deposits. The origin of these oscillations is now thought to be related to magnetohydrodynamic waves developing at the boundary of the magnetosphere or within the magnetosphere. These waves may arise by irruption of plasma clouds into the magnetosphere, within which they travel rather slowly ( $10^2$  -  $10^4$  km/sec) along (toroidal oscillations) and across (poloidal oscillations) the magnetic lines of force. The waves reach the lower boundary of the ionosphere travelling at the indicated velocities. Further propagation of hydro-magnetic waves becomes impossible, and the waves are converted to electromagnetic waves, which are recorded on the earth's surface as short-period oscillations in the magnetic field and in telluric currents. More thorough understanding of these oscillations is being sought in observational and theoretical studies by scientists in all parts of the world.

Cord 2/72

TROITSKAYA, V.A.

Results of a study of earth currents. Geofiz. biul. no. 14:55-66  
'64. (MIRA 18:4)



MATVEYEVA, E.T.; TROITSKAYA, V.A.

General laws governing the pearl-type mode of oscillations.  
Geomag. i aer. 5 no.6:1078-1084 N-D '65.

(MIRA 19:1)

1. Institut fiziki Zemli AN SSSR. Submitted August 3, 1964.

L 24009-66 EWT(1)/FCC/EWA(h) GW

ACC NR: AP6014961

SOURCE CODE: UR/0203/65/005/006/1078/1084

AUTHOR: Matveyeva, E. T.; Troitskaya, V. A.

ORG: Institute of Physics of the Earth, AN SSSR (Institut fiziki Zemli AN SSSR)

TITLE: General patterns of the pulsating regime of Pcl pulsations

SOURCE: Geomagnetizm i aeronomiya, v. 5, no. 6, 1965, 1078-1084

TOPIC TAGS: ionosphere, solar activity

ABSTRACT: On the basis of many years of observations of pulsations of type Pcl the authors describe the morphological properties of this pulsating regime. There is an inverse dependence of the amplitude of Pcl, the duration of their series and a number of cases of excitation on solar activity. The characteristics of the planetary distribution of Pcl pulsations are described. It is demonstrated that there is a clear relationship between Pcl and the character of solar activity and the state of the earth's ionosphere and magnetosphere. Analysis of the diurnal variation of pearls for different seasons reveals a clear displacement of the maxima to later hours with transition from summer to winter. In summer at Borok the maximum number of cases of Pcl is observed in the early morning hours, but in winter this maximum is displaced to considerably later hours. The diurnal variations of Pcl at the time of the equinoxes occupy an intermediate position. For each station there is a characteristic distribution of Pcl by periods; there is an undoubted tendency for an increase of a number of cases of large-period pulsations with an increase of the latitude of the

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ACC NR: AP6014961

point of observation. A detailed analysis of Pcl at Kerguelen, Borok, Lovozero, Kheys and Mirnyy revealed: 1. All cases of Pcl recorded at Kerguelen were recorded at Borok and Lovozero. In all cases the periods of observed pulsations either coincided or usually differed by not more than 0.1 sec. 2. Comparison of the records of polar cap stations shows that there is a variety of cases of excitation. Sometimes there are cases of Pcl which transpire simultaneously in the polar caps and the middle latitudes with an identical period. Orig. art. has: 8 figures and 1 table. [JPRS]

SUB CODE: 04, 03 / SUM DATE: 03Aug64 / ORIG REF: 002 / OTH REF: 018

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L 12081-66 EWT(1) QW

ACC NR: AP6003338

SOURCE CODE: UR/0387/66/000/001/0076/0079

AUTHOR: Troitskaya, V. A.; Shchepetnov, R. V.; Bol'shakova, O. V.; Matveyeva, E. T.

ORG: Institute of Physics of the Earth, AN SSSR (Institut fiziki Zemli AN SSSR)

TITLE: Characteristic properties of rapid variations of the Earth's electromagnetic field in the polar regions

SOURCE: AN SSSR. Izvestiya. Fizika Zemli, no. 1, 1966, 76-79

TOPIC TAGS: electromagnetic terrestrial field, electromagnetic field variation, solar activity, pearl shaped variation, stable variation, polar region, magnetic storm, irregular variation, aurora, magnetically coupled region, magnetic force line, proton, solar cycle

ABSTRACT: During the IGY short-period variation measurements of the electromagnetic field in the polar regions of the Soviet Union were carried out at five Arctic stations (Kheys Island, Barentsburg, Cape Chelyuskin, Tiksi Bay, and Lovozero) and in Antarctica (Mirnyy and Oasis). Analysis of data obtained showed that the properties of the polar regions are associated with the cycle of solar activity. Especially rapid irregular variations of type P11 and the frequency of excitation of pearl-shaped variations Pcl depend upon the solar cycle. The daily rate of these variations differs from those at middle latitudes. Soviet observatories noted giant pulsations of types

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